

OPERATIVE DISLOCATION OF THE HEAD OF THE FEMUR IN TUBERCULAR DISEASE OF THE ACETABULUM.

By EDWARD HICKLING BRADFORD, M.D.,

OF BOSTON, MASS.,

ASSISTANT PROFESSOR OF ORTHOPÆDIC SURGERY IN HARVARD UNIVERSITY.

THE injurious effect from the head of the diseased femur crowded against an inflamed acetabulum can be seen in any pathological specimen of neglected hip disease.

Under exaggerated reflex muscular spasm incident to tubercular osteitis of the joint, the femur is flexed and adducted, and pressed upward against the upper rim of the acetabulum; the so-called wandering of the acetabulum results, and the head of the femur, distorted by disease and pressure, becomes displaced and dislocated. Cicatrizing osteitis follows in the acetabulum and head of the femur relieved from abnormal interarticular pressure; the destructive osteitis and the natural cure follow with deformity. The natural cure meets many of the indications of proper treatment of hip disease, which would be followed generally in the treatment of the disease, if it were not for the distressing deformity of the natural cure with its shortening dislocation and malposition. There is also a long period of pain and sensitiveness from the crowding of the inflamed surfaces together until a dislocation results, relieving exaggerated interarticular pressure and friction.

It is to prevent these evils that the modern treatment of hip disease is directed, diminishing interarticular pressure,

friction of the carious joint surfaces, and the deformity and shortening which follow neglected cases. The success of such treatment when thoroughly carried out is well known, and has been demonstrated in many special works upon the subject.

Certain cases, however, are occasionally met where conservative treatment presents difficulties and the pathological processes progress in spite of every effort. They are usually cases where the disease has made considerable advance and destruction before thorough treatment has been undertaken, or where there has been little resistance in the tissue to check the ravages of the tubercular osteitis.

Where the tubercular focus exists chiefly in the neck of the femur, and the head is but slightly diseased, it is evident that the tubercular slough is discharged readily, a cicatrizing osteitis established in its place, and a cure results readily under treatment which protects the head of the femur from destructive jar and pressure.

Such cases partially resemble those where the caries is situated chiefly in the trochanter and is benefited readily by extra-articular operations, curetting the foci. Where the diseased focus is primarily in the acetabulum, the difficulty of any treatment, either conservative or operative, is increased greatly. Not only is it more difficult to prevent destructive interarticular pressure from the muscular spasm of the muscles of the femur crowding the head of the femur upward towards the centre of the acetabulum, but the discharge of the necrotic tissues resulting from the carious process is less easily provided for in central acetabular disease than in any other part of the hip-joint. It is probable that many of the cases of hip disease which are unsuccessfully treated are those of primary disease of the acetabulum.

In the three instances in which this procedure was carried out, disease of the acetabulum was recognized by skiagrams. In one instance the head of the femur was slightly involved, though the acetabulum was extensively diseased. In all of the cases the condition of the child was desperate and suggested amputation of the hip-joint. The sinuses, the begin-

ning of cachexia, emaciation, pain and sensitiveness, and general deterioration in spite of ordinary treatment, indicated a progressing process which could be checked only by a radical surgical interference, the chief indication being thorough drainage from the acetabulum.

Where the acetabulum is involved and no dislocation has taken place, and the process is active, the difficulty of drainage is evident, as the head of the femur not only acts as an irritant aggravating the disease by crowded pressure upon the carious acetabulum, but the discharge of detritus, without which no healing can take place, is prevented by the head of the femur, which completely fills the socket. Drainage is finally permitted by the perforation of the acetabulum and the development of a pelvic abscess, which evacuates itself sometimes in the rectum, but usually by the development of an abscess lying beneath the pelvic peritoneum, which, burrowing under the tissues, finds an imperfect outlet by circuitous routes following the line of least fascial resistance. As these sinuses cannot evacuate themselves perfectly, cure is impossible, caries remains, and chronic septic changes become inevitable from retained discharge. Eventually, in many cases, dislocation of the head of the femur takes place by the partial absorption of the head and the widening of the acetabulum, thus relieving the pressure upon the bed of the acetabulum. Drainage becomes easier and recovery favored. In some instances, however, where the disease of the acetabulum is more active than that of the head, the increasing intra-articular pressure caused by the reflex contraction of the muscles around the head does not develop a dislocation, but drives the head of the femur directly towards the centre of the acetabulum, aggravating the perforations already caused by the caries.

Under these conditions, the patient is obliged to endure a long struggle against the evils following an imperfectly drained tubercular process.

The condition is not one of attempting to establish a cure without deformity, but of saving life at any cost, with or without deformity. If thorough drainage can be given and the

benefit of activity permitted, the conditions favoring a cure are offered to the patient. This can be accomplished if the head is dislocated and all pressure removed from the acetabulum, provided this dislocation is effected without such interference with the patient's general condition as will prevent moderate activity.

In the three cases operated upon, various incisions were used, the anterior, lateral, and posterior; the anterior incision being slightly to the inside of the tensor vaginæ muscle with incision of the capsule and dislocation of the head from the socket by means of forcible pressure. The fact that drainage is less readily afforded through an anterior wound than with a posterior wound is an objection to this method in severe cases. Where the side incision was made directly over the trochanter, the head of the femur could be reached, but it lay at considerable depth. The posterior incision, the usual incision for excision in the hip, seems to offer the best means of reaching the joint. The patient was placed upon the side, and a straight incision made down upon the neck of the femur. A cross-incision was necessary to open the capsule freely, a hook was inserted and placed around the neck, and with slight amount of force was dislocated from the acetabulum and placed upon the dorsum. The limb was in a flexed and adducted position, and the incision sufficiently long to allow the finger to enter freely into the acetabulum. The acetabulum was then curetted and touched with strong carbolic acid washed off with alcohol. A large celluloid drainage tube of the size of a round speculum an inch in diameter was inserted through the wound, reaching directly to the acetabulum. This drainage tube was easily made by boiling sheet celluloid and folding it around a tube of sufficient size. The celluloid becoming stiff on exposure to cold air, the edges were trimmed off, the lapping edges of the folded celluloid were secured by painting them with acetone, and the tube was cut sufficiently long to extend from the acetabulum to a short distance beyond the skin, which was stitched to the end of the celluloid tube. A direct communication could be made to the acetabulum, and

daily applications made upon the carious portions in the same way as applications are made upon an inflamed uterine cervix.

In one instance, the drainage tube was inserted below a flexed femur which was pulled upward, and the tube was pointed obliquely from below, upward and inward. In the other case, the tube was placed above the dislocated femur and pointed obliquely downward and inward. The advantage of the latter was that if the femur was extended it did not crowd upon the tube, and if the head of the femur dropped downward, the tube was not pressed away from the acetabulum. In all the cases the femur was kept in an adducted and flexed condition by means of a plaster-of-Paris bandage which included legs and thigh.

In the first case, this plaster-of-Paris bandage was used for two months; in the last case, this was removed after a shorter time.

It is manifest, as soon as the fixation bandage can be removed without discomfort to the patient, it is desirable to do so, as locomotion with crutches should be interfered with as little as possible.

The immediate results of these three operations were extremely satisfactory. There was a great improvement in the temperature, there was but little shock of the operation, the patient was relieved from sensitiveness and pain, and was able to be moved with much greater freedom than before. The result has been watched in two of these cases for some time. In one a year and a half, in the other a year. In the third, the result was not watched for longer than three months, as the patient was removed to a distance. In the two that were watched for a long time, a great improvement in the patients' conditions was noticeable. There was a marked increase of weight, and the patient was able to go about on crutches with freedom in the position of patients with a cured hip disease with a bad deformity. In both these cases it was necessary to retain the celluloid drainage tubes for a long period, applications being made by means of a tampon or injection to the diseased acetabulum. Otherwise, the deep

passage to the acetabulum became blocked by the muscles which on contraction stretched across the acetabulum. When it became evident that thoroughly healthy granulations covered the acetabulum and good drainage was secured, the drainage tubes were removed. It is manifest that nothing would be gained by small drainage tubes, as the secret of success lay in absolute drainage and the substitution of healthy granulation for unhealthy changes. In both of these instances the result proved that the procedure was a life-saving one, but in none of them has an attempt yet been made to replace the head into the acetabulum. In the case that was not followed longer than three months, the patient had improved greatly, enough to warrant the attempted treatment. The ultimate result is not known, and, as the patient had developed amyloid changes, the ultimate outcome is doubtful.

In regard to the correction of the deformity, two measures suggest themselves,—either an attempt at the reduction of the head of the femur into the cured acetabulum, which would be difficult if any change in the tissues had taken place, or correction of the deformity by subtrochanteric osteotomy. The latter promises a useful limb, provided the head is firmly established in its position of dislocation, which can reasonably be expected as the cicatrizing process progresses.

In the three cases in which this procedure was performed, the patients were young, varying from five to six years of age. It is manifest that the measures would be of less use in older patients without an active process of repair. It is uncertain in how many cases this method can be used, but, from the three in which it has been tried, the result appeared to prove that it was not dangerous, that it was preferable to the excision of the acetabulum, and less mutilating than amputation of the hip-joint.

Although the relief of the diseased acetabulum from the intra-articular pressure of the crowded head of the femur and the giving thorough drainage was attempted only in desperate cases by means of dislocation of the femur, it is possible

that this measure may be of use in less severe cases, when the relief of pressure is demanded more than acetabulum drainage.

Under these circumstances, the anterior incision and the forward dislocation of the head of the femur suggest themselves as of possible advantages in less advanced cases of acetabular disease.